

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 10 JUL 2006

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Applicant's or agent's file reference <b>H0005430-PCT</b>	<b>FOR FURTHER ACTION</b>		See Form PCT/IPEA/416																
International application No. <b>PCT/US05/10550</b>	International filing date (day/month/year) <b>29 March 2005 (29.03.2005)</b>	Priority date (day/month/year) <b>30 March 2004 (30.03.2004)</b>																	
International Patent Classification (IPC) or national classification and IPC IPC: <b>H05B 7/20</b> USPC: <b>361/704, 719; 257/706; 165/80.3, 185</b>																			
Applicant <b>HONEYWELL INTERNATIONAL INC.</b>																			
<ol style="list-style-type: none"> <li>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</li> <li>2. This REPORT consists of a total of <u>3</u> sheets, including this cover sheet.</li> <li>3. This report is also accompanied by ANNEXES, comprising:                         <ol style="list-style-type: none"> <li>a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of <u>4</u> sheets, as follows:                                 <div style="margin-left: 20px;"> <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).                                     <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.                                 </div> </li> <li>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</li> </ol> </li> <li>4. This report contains indications relating to the following items:                         <table style="margin-left: 20px; border: none;"> <tr> <td><input checked="" type="checkbox"/> Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td><input type="checkbox"/> Box No. II</td> <td>Priority</td> </tr> <tr> <td><input type="checkbox"/> Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/> Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/> Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/> Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/> Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input type="checkbox"/> Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table> </li> </ol>				<input checked="" type="checkbox"/> Box No. I	Basis of the report	<input type="checkbox"/> Box No. II	Priority	<input type="checkbox"/> Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/> Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/> Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/> Box No. VI	Certain documents cited	<input type="checkbox"/> Box No. VII	Certain defects in the international application	<input type="checkbox"/> Box No. VIII	Certain observations on the international application
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Date of submission of the demand <b>03 August 2005 (03.08.2005)</b>		Date of completion of this report <b>20 June 2006</b>																	
Name and mailing address of the IPEA/ US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201		Authorized officer <i>[Signature]</i> <b>Boris L. Chervinsky</b> Telephone No. 571-272-1850																	

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/US05/10550

Box No. I Basis of the report

1. With regard to the language, this report is based on:

- ☒ the international application in the language in which it was filed.
- ☐ a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
- ☐ publication of the international application (under Rule 12.4(a))
- ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a))

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

- ☐ the international application as originally filed/furnished
- ☒ the description:  
 pages 1-9 as originally filed/furnished  
 pages\* NONE received by this Authority on \_\_\_\_\_  
 pages\* NONE received by this Authority on \_\_\_\_\_
- ☒ the claims:  
 pages 10-13 as originally filed/furnished  
 pages\* 10-13 as amended (together with any statement) under Article 19  
 pages\* 10-13 received by this Authority on 14 March 2006 (14.03.2006)  
 pages\* NONE received by this Authority on \_\_\_\_\_
- ☒ the drawings:  
 pages 1-5 as originally filed/furnished  
 pages\* NONE received by this Authority on \_\_\_\_\_  
 pages\* NONE received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.  
PCT/US05/10550**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims <u>NONE</u>	YES
	Claims <u>1-28</u>	NO
Inventive Step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-28</u>	NO
Industrial Applicability (IA)	Claims <u>1-28</u>	YES
	Claims <u>NONE</u>	NO

**2. Citations and Explanations (Rule 70.7)**

Claims 1,2,10, 15-18,20,21,23,24,25,27,28 lack novelty under PCT Article 33(2) as being anticipated by Yamaoka. Yamaoka discloses a heat spreader comprising a base portion 36 having a heat spreading surface comprised of a heat receiving region made of a first material that is aluminum or aluminum alloy (col. 6, lines 59-61); a frame portion 50 made of second material such as ceramic or synthetic resin (col. 7, lines 46-47) interfacing perimeter portion of the heat spreader and having opening traversing the thickness of the frame portion. The method steps are necessitated by the device structure as disclosed by Yamaoka.

Claims 6,7,8,9,11 lack an inventive step under PCT Article 33(3) as being obvious over Yamaoka in view of McCormick et al. Yamaoka does not specifically indicate the thermal conductivity range and that thermal expansion is less than 6 ppm/k but it would be obvious to one having ordinary skill in the art at the time the invention was made to have the thermal expansion limited to claimed number to avoid stress in joined materials. The diffusion bonding is known method of joining of two different parts and as method step in the article claim does not render novelty as soon as the structure is disclosed.

Claims 3, 4, 5, 12-14, 19, 22, 26 lack an inventive step under PCT Article 33(3) as being obvious over Yamaoka. in view of Edwards et al.

Yamaoka discloses the claimed invention except interface material such as solder or adhesive disposed between the frame and the base portion and between the base portion and the heat generating device. Edwards discloses such materials, therefore it would be obvious to one having ordinary skill in the art at the time the invention was made to use coating materials as disclosed by Edwards in the device disclosed by Yamaoka.

----- NEW CITATIONS -----

US 5,886,408 A (Ohki et al.) 23 March 1999, see column 14, lines 14-16.

US 6,442,026 B2 (Yamaoka) 27 August 2002, see column 6, lines 59-61, column 7, lines 46-47.